63-4-6

19 August 1963

63RC12731

Subject: Thor Informal Monthly Progress Report
July, 1963, Contract AF04(695)-306

To: Air Force Plant Representative, Rocketdyne

In turn to: Headquarters
Space Systems Division
Air Force Unit Post Office
Los Angeles 45, California

Attention: Lt. Col. J. Mullady, SSVSP

1. Attached is the fourth in a series of informaly monthly progress reports submitted in compliance with Item VII of Request for Services Order Number 306-63-01 under contract AF04(695)-306.

2. The report summarizes the progress and status of all Thor work covered under this contract during the month of July, 1963.

NORTH AMERICAN AVIATION, INC.
Rocketdyne Division

J. J. Griffin
Program Manager
Atlas/Thor/Jupiter

JJG:DAH:ce
G.O. 8467

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1st Ind
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Rocketdyne Division
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Canoga Park, Calif. AUG 2 4 1963
TO: SSD FOR: SSVSP
Reviewed ☑ Approval recommended ☐
For the Air Plant Representative:

J. E. POTTER
Chief, Production Division

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ITEM: Flight Support

G.O.: 8467

ORIGINATING DOCUMENT: Contract AF04(695)-306 Thor Engineering Support - Statement of Work

DESCRIPTION:

The Thor project provides technical assistance to all programs utilizing the LR79 engine system. These programs include Delta and Agena. The program differences require constant cognizance of test programs, test plans, engine performance and acceptance history, engine and vehicle configuration, technical manuals and data, AGE utilization and capabilities, malfunctions and component failures, flight performance and abnormalities, for the effect on all programs.

STATUS:

1. The 74th Thor/Agena, Vehicle 388, was successfully launched from VAFB launch emplacement 75-1-1 on 18 July at 1700:10 hours PDT. The first stage propulsion system consisted of LR79-NA-11 main engine NA004853 and LR101-NA-11 vernier engines S/N NA334923 and NA334924. Booster propulsion system performance was satisfactory throughout flight.

2. Thor/Delta #20, vehicle 370, was successfully launched from pad 17A, AFIR on 26 July at 0933 EST. The first stage propulsion system consisted of LR79-NA-11 main engine S/N NA004851 and LR101-NA-11 vernier engines S/N NA334901 and NA334902. Propulsion system operation was satisfactory throughout flight.

3. The 7th Thor/Agena with solids boost, vehicle 382, was successfully launched from VAFB launch emplacement 75-1-2 on 30 July at 1700:26 hours PDT. The first stage propulsion system consisted of LR79-NA-11 main engine S/N NA004873 and LR101-NA-11 vernier engines NA334941 and NA334942 plus the three solid boosters. The propulsion system operation was satisfactory throughout flight. A 1000 lb. fuel residual at cutoff was indicated. A similar residual was noted on the previous flight (vehicle 381) from this pad.

4. The "Thor Quarterly Flight Analysis Summary" (R-5261-1P) and the "Thor Quarterly Failure Analysis Corrective Action Summary Report" (R-5262-1P) were completed and issued this period.

5. Engineering assistance was given to VAFB field representatives on the LOX start tank pressurizing valve malfunction. Tests were made on the valve while installed in the vehicle to determine what effects the customer furnished lines may have on the pneumatic system. Investigation is still active.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: DAC Support

G.O. 8467

ORIGINATING DOCUMENT: DNA

DESCRIPTION:

The Thor project maintains liaison with Douglas Aircraft Company propulsion and projects groups to provide technical assistance to all SSD programs utilizing the LR79 engine system.

STATUS:

1. The large number of Operation and Failure Reports on the first 17 LR79-NA-9 engines at Tulsa initiated an investigation of these reports. An engineer was sent to AMR to review engine NA004220. Recommendations were made to representatives at the site to correct the obvious discrepancies noted.

2. A malfunction of the [illegible] P/N 550180 has occurred during several engine checkouts when the start tanks were repressurized. When this malfunction occurs, the entire GN_2 system (3000 psi bottles) is blown down. Engineering assistance was given to Vickers to test a malfunctioning valve while installed in the vehicle. Inspection of the valve after disassembly revealed no contamination or visible reason for the problem. No explanation has been reached and investigation is continuing. This malfunction creates no flight risk as it may only occur in flight after vernier engine shutdown is complete and therefore would have no detrimental effect on the flights. If the investigation warrants, a request for a fix will be issued.

3. Much concern was given to the acceptance specification pressure on the present pressure switches used for the Thor propellant depletion cutoff circuitry. Due to rather strict requirements, over 50% of the pressure switches were being rejected. The requirements were such that if a switch was more than 25 psi above the field setting (550 psig) the switch was to be rejected. This tolerance has been evaluated and revised to [illegible] psi. Revisions to field service bulletins are being made to incorporate this change.

4. Investigation was active on the problem of the large fuel residual remaining at the end of the last two flights from launch

emplacement 75-1-2, VAFB. No conclusions have been reached and checkouts of the launch facility is currently being performed by DAC with Rocketdyne personnel in audience. Because the two flights concerned were the only ones from this pad since Thrust Augmented Thor (TAT) modifications were incorporated, it seems feasible to expect the loading error to be the result of a pad facilities problem.

5. A meeting was held at DAC to inform Rocketdyne of changes being made to the DAC furnished, ground monitoring start sequence harness. This harness connects the engine relay box through the umbilical to the G1000 interconnecting box in the DAC EET trailer. Only DAC harness will be changed and no effect on any Rocketdyne furnished equipment is evident.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: FLOX

G.O.: 8467

ORIGINATING DOCUMENT: SSD TWX SSVSP 27-6-142

DESCRIPTION:

SSD/Aerospace has expressed interest in the operation of Thor space vehicle boosters with FLOX (70% oxygen and 30% fluorine oxidizer mixture) to gain additional payload capability. A test program outline and cost proposal were prepared and submitted to SSD for consideration. Additional information concerning detailed engine performance characteristics were requested to support the analytical efforts of Aerospace. Engine performance data were derived with the mathematical model for a spectrum of operating conditions (various FLOX concentrations, thrust levels, etc.) Considerable support has been extended to DAC on this subject.

STATUS:

Pending meetings with Aerospace regarding engine performance with FLOX.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: 18-20 CPS Thor Vehicle Longitudinal Oscillation Study

G.O.: 8467

ORIGINATING DOCUMENT: SSD TWX SSVSP 12-4-90 dated 15 April 1963

DESCRIPTION:

Thor vehicle flights have continued to reflect an 18-20 cps oscillation during the latter part of main engine operation. Combined efforts of Rocketdyne, Douglas and Aerospace (Joint Technical Panel on Thor longitudinal oscillations) have been aimed at the analysis of this phenomenon and the means of corrective action.

STATUS:

1. Data analysis techniques have been evaluated in an attempt to gain confidence in methods of obtaining more information of higher quality from available data. Techniques evaluated have included evaluation of auto-correlation on randomly excited, transient data, and methods of model matching to verify existing transfer functions and help to evaluate presently unknown transfer functions.

2. Analog computer effort for the last month has been concentrated on organization of existing results and checkout of computer patchboard with latest revisions.

3. The Joint Technical Panel has initiated effort toward resolving analog model differences and eventual establishment of a firm model. The meetings conducted during this report period were 1) 12 July, Preparation for NASA Briefing on missile oscillation history and status, 2) 17 July Briefing of NASA personnel on above subject, and 3) 24 July Preparation for analysis of given flight conditions on all analog models.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: Design Information Report

G.O.: 8467

ORIGINATING DOCUMENT: Contract AF04(695)-306 Statement of Work

DESCRIPTION:

The MB-3 Design Information Report (DIR) presents a description of and pertinent data for the MB-3 propulsion system. The DIR outline which was originally proposed with nine sections was revised to include seven sections as follows:

1. General Description
2. Customer Connect Information
3. Electrical System
4. Operating Requirements and Limitations
5. Steady State Performance
6. Influence Coefficients
7. Transient Characteristics

STATUS:

The DIR for the YLR79-NA-13 was issued 31 July (R-5214). All pertinent data for the LR79-NA-11 and LR79-NA-5 DIR's are now being compiled.

SCHEDULED COMPLETION DATE:	LR79-NA-11 (rev.)	31 August 1963
	LR79-NA 9 (rev.)	30 September 1963
ESTIMATED COMPLETION DATE:	LR79-NA-11	31 August 1963
	LR79-NA-9	30 September 1963

ITEM: AGE Configuration and Change Proposals

G.O.: 8467

ORIGINATING DOCUMENT: Verbal Request at June Program Review Meeting by Capt. T. Hobbs

DESCRIPTION:

On 31 July 1963 a briefing was given to SSD describing the possible changes to G1000, G3000, and G3002 for the space program. A chart (see TABLE I) was presented, listing the quantities of the end items that Rocketdyne anticipates for the complete space program, and depicting the possible combinations of changes and alternate solutions.

The Air Force requested that additional backup material be prepared, and that Rocketdyne determine which of the alternate solutions presented is best. The changes will be discussed at a Configuration Control Board Meeting on 13 August 1963.

STATUS:

Preliminary work has been initiated to prepare the necessary MCR's and PECP's for the proposed changes. Additional information will be gathered on the LR79-NA-9 hypergol conversion and the associated AGE changes.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

Number of End Items for Space Program	G1000 25	G3000 5	G3002 25	Remarks Includes present requirements plus requirements for F-10 and Program 437
hange:				
103 - Modify the G1000 to allow firing hypergol main h either hypergol or pyrotechnic vernier engines.	X	X		(5 and 6 are alternate solutions) This requires that all -9 main engines be converted to hypergol. 39 engines are presently scheduled for overhaul, and 26 engines are still available from IOC locations.
position to the engine motor test selector switch and a uit in the G1000 to fire hypergol main engine and vernier engine. The safety circuit would prevent of the missile with the transfer switch in the wrong	X	X		(5 and 6 are alternate solutions) This change will allow the firing of standard -9, -9 with hypergol igniter main engine and pyrotechnic igniter vernier engines, -11, and -13 engines.
bility of checking the solid motor ignition circuits.	X	X	X	Limited effectivity; will effect 7 units of the G1000 and 7 units of the G3002 at VAFB. One G3000 will have to be refurbished.

ITEM: Aluminum B-Nuts - LR79-NA-9 Engines

G.O.: 8467/5302

ORIGINATING DOCUMENT: Verbal Request, Lt. Taggart (AFPRO) to J. Salerno (Rocketdyne) 28 January 1963

DESCRIPTION:

This change consists of replacing all existing tube assemblies on the LR79-NA-5 main engine having aluminum B-nuts with new tube assemblies incorporating B-nuts made from aluminum alloy 6061-T6 in accordance with ECP MB3-170.

STATUS:

Contractual coverage for kits was received on 14 June 1963. The retrofit kit drawing and all new tube assembly drawings were released for kits 9 July 1963.

SCHEDULED COMPLETION DATE: Completed

ITEM: Aluminum B Nuts - LR101-NA-9 Vernier Engine

G.O.: 8457/5302

ORIGINATING DOCUMENT: Verbal Request, AFPRO to Rocketdyne, 28 January 1963

DESCRIPTION:

This change consists of replacing all existing tube assemblies on LR101 NA-9 vernier engines having aluminum B-nuts with new tube assemblies incorporating B-nuts made from aluminum alloy 6061 T6, in accordance with SCP MB3-17.

STATUS:

Contractual coverage for drawing release of kits was received 14 June 1963. The retrofit kit drawing and all new tube assembly drawings were released to Manufacturing 11 July 1963.

SCHEDULED COMPLETION DATE: Completed

ITEM: Hypergolic Ignition, LR79-NA-9 Engines

G.O.: 8467

ORIGINATING DOCUMENT: TWX from SBAMA (07684RC) to J. Griffin, E. Bedel, and W. Buchanan dated 24 April 1963

DESCRIPTION:

Rocketdyne has reproposed hypergolic ignition for LR79-NA-9 engines per RFC number 135-24. This change eliminates igniter damage to the thrust chamber and insures a more reliable start as experienced in the Thor LR79-NA-11 and YLR79-NA-13 engines.

STATUS:

Through design studies it has been determined that the hypergol container will be mounted on the thrust chamber LOX inlet elbow and the igniter fuel valve will be mounted on the engine component frame. Some detail drawings have been completed and are in checking process and the kit installation drawing is near completion. A layout and detail drawing will be given to an outside supplier to make a new flex hose to connect the hypergol container to the LOX dome.

SCHEDULED COMPLETION DATE: 23 August 1963

ESTIMATED COMPLETION DATE: 23 August 1963

ITEM: AGE for Point Arguello Launch Complex (PALC)

G.O.: 5294

ORIGINATING DOCUMENT: DNA

DESCRIPTION:

A meeting was held at DAC to discuss modification of AGE that is to be located at PALC. It was determined that the only ECP that would have to be incorporated to provide launch capability would be MB3 144 (MD 14) which covers the GI000 Interconnecting Box. Other modifications for compatibility will be made on-site, but MB3 144 will be installed at DAC.

DAC agreed to initiate a TWX requesting that SSD provide the necessary authorization to purchase and install ECP MB3-144 (MD 14).

STATUS:

DAC is originating a TWX, and SSD has initiated cal. coverage for incorporation of MB3-144 in GI000 Interconnecting Box S/N 140005. DAC has made a request for the kit to Bocrodyne Supply Support and since two kits are presently in stock, the modification will be accomplished immediately.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: Orodite Run In Procedure for Thor Turbopump

G.O.: 5279

ORIGINATING DOCUMENT: MCR

DESCRIPTION:

This change consists of providing for the incorporation of the orodite run-in procedure on the Thor turbopump gearbox. This change will be reflected in an addition to the appropriate process specification

STATUS:

An amendment to Process Specification RA0210-619 has been completed and is expected to be issued by 15 August.

SCHEDULED COMPLETION DATE: NA

ESTIMATED COMPLETION DATE: 16 August 1963

ITEM: Engine Overhaul, Process Specifications

G.O.: 5316

ORIGINATING DOCUMENT: MCR MB3-187 and MB3-185

DESCRIPTION:

As a result of the acceptance of ECP's MB3-142 Redundant Check Valves (ML 39); MB3-187 Gas Generator Welded Bottom Cover Plate (MD 42); and MB3-166 change in model spec Allowable Size of Solid Impurities in LOX, Fuel, and Pressurants -- all affected LR79-NA-9 engine overhaul process specifications were amended to incorporate these changes.

STATUS:

Specification	Status
RA0210-014 Outline	Reissue in release system
RA0220-292 Pre-Checkout (new spec)	Completed rough draft
RA0220-126 Hot Fire	Amendment in release system
RA0220-135 Post Checkout	Amendment in work
RA0220-049 Thrust Alignment	Made applicable to overhauled engines

SCHEDULED COMPLETION DATE:

RA0210-014	23 August 1963
RA0220-292	25 August 1963
RA0220-135	30 August 1963
RA0220-126	24 July 1963
RA0210-049	24 July 1963

ESTIMATED COMPLETION DATE:

RA0210-014	20 September 1963
RA0220-292	20 September 1963
RA0220-126	20 September 1963
RA0220-135	20 September 1963
RA0210-049	20 September 1963

ITEM: LR79-NA-9 Engine Overhaul at Rocketdyne, Status

G.O.: 5316

ORIGINATING DOCUMENT: Verbal Request by Capt P. Hobbs

DESCRIPTION:

Rocketdyne is contracted to overhaul and hot fire eight LR79-NA-9 engines and sixteen LR101-NA-9 engines. The overhaul and hot fire is being performed at the Neosho, Missouri, facility.

STATUS:

Engine	Serial Number		
LR79-NA-9	NA004213	Completed teardown	Completed IDR
LR79-NA-9	NA004247	Completed teardown	Completed IDR
LR79-NA-9	NA004259	Completed teardown	---
LR101-NA-9	NA334278	Completed teardown	Completed IDR
LR101-NA-9	NA334323	Completed teardown	Completed IDR
LR101-NA-9	NA334320	Completed teardown	Completed IDR
LR101-NA-9	NA334322	Completed teardown	Completed IDR

SCHEDULED COMPLETION DATE:

LR79-NA-9
2 in October 1963
2 in November 1963
2 in December 1963
2 in January 1964

LR101-NA-9
4 in October 1963
4 in November 1963
4 in December 1963
4 in January 1964

ESTIMATED COMPLETION DATE: DNA

ITEM: **Position Switch Assembly, Main Fuel and Main Oxidizer Valves, LR79-NA-9 Engines; Replacement of**

G.O. 8467

ORIGINATING DOCUMENT: Verbal request at June Program Review Meeting by Capt. T. Hobbs

DESCRIPTION:

This change consists of replacing the existing main fuel and main oxidizer valve position switches with new rotary wiper type position switches to provide a more reliable valve position monitoring capability.

STATUS:

Submittal of ECP MB3-102 is anticipated 12 August 1963.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

ITEM: LOX Leakage, LR101-NA-9 Vernier Engine Gimbal Shafts; Elimination of

G.O.: 8467

ORIGINATING DOCUMENT: MCR MB3-139

DESCRIPTION:

This change consists of reworking P/N 350019 Pitch Gimbal Shaft Assembly and P/N 350099 Thrust Chamber Body Assembly to permit incorporation of new elbows and seals. This change will eliminate the LOX leakage associated with the present configuration. Leakage through the O-ring and leather backup ring occurs during overhaul hot fire. This leakage requires replacement of the O-ring and leather backup ring and additional hot fire testing. The incorporation of the reworked gimbal shaft assembly and the reworked thrust chamber body assembly (similar to LR101-NA-11 engines) will eliminate the unnecessary expense incurred to replace defective parts and re-hot fire the engine.

STATUS:

A design study was conducted and results show that the thrust chamber body and the gimbal shaft assembly can be reworked to this new configuration.

SCHEDULED COMPLETION DATE: 23 August 1963

ESTIMATED COMPLETION DATE: 23 August 1963

ITEM: Status of MCR's and GSECP's Affecting Thor Space Program

G.O.: 8467

ORIGINATING DOCUMENT: DNA

DESCRIPTION:

A description and status of MCR's and GSECP's affecting the Thor space program is presented in TABLE II.

SCHEDULED COMPLETION DATE: DNA

ESTIMATED COMPLETION DATE: DNA

TABLE II

STATUS OF MCR's AND GSECP's AFFECTING THOR SPACE PROGRAM

15 August 1963

MCR NO.	ECP GSECP NO.	ECP GSECP DATE	TITLE	STATUS
	MB3-103R1		Circuitry, G1000 - Interconnecting Box; Changes to Provide a circuitry change to the G1000 Interconnecting Box that will allow the firing of 117L missiles using either the new combination of XLR79-NA-11 main engines with XLR101-NA-9 vernier engines or the existing combination of XLR79-NA-11 main engines with the XLR101-NA-11 vernier engines.	R1 to be submitted to increase effectivity upon completion of RFC 135-24
	MB3-102	13Aug63	Switch Assembly, Main Fuel and Oxidizer Valve, LR79-NA-9 Engine; Replacement of	Approved by CCB 13Aug63. Contractual approval required for 28 kits
	MB3-104R1		Hypergolic Ignition System, Main Chamber; Provide for	R1 to be submitted upon completion of effort in REC 135-24
	MB3-111R1		Test Plate, Engine Hypergolic Ignition System; Provide for Provide a test plate to plug the igniter fuel holes on the engine injector to allow pressurization of the hypergol system proposed by MB3-104. Test Plate to be added to the G3007 Rocket Engine Service Kit.	R1 to be submitted upon completion of effort in RFC 135-24
	MB3-112R1		Test Plate, Engine Hypergolic Ignition System; Provide for Provide a test plate to plug the igniter fuel holes on the engine injector to allow pressurization of the hypergol system proposed by MB3-104. Test plate to be added to the G3008 Service Kit.	R1 to be submitted upon completion of effort in RFC 135-24

TABLE II

STATUS OF MCR's AND GSECP's AFFECTING THOR SPACE PROGRAM — 15 August 1963

MCR NO	ECP GSECP NO	ECP GSECP DATE	TITLE	STATUS
	MB3-139	2Aug63	LOX Leakage, Pitch Gimbal Shaft Assembly and Thrust Chamber Body Assembly, LR101-NA-9 Vernier Engine; Replacement of	Approval by CCBD 13Aug63. Contractual coverage required for 44 kits plus rework of (1) spare T/C Assembly and (2) spare Pitch Gimbal Shafts
	MB3-163	22May63	Relays, Control Monitor, G3002; Removal of To remove the K1352-V and K1354-V relays in the G3002 Control Monitor.	To be cancelled. Incorporated into MB3-194 14 kits
	MB3-171R2	16July63	Aluminum "B" Nuts, LR101-NA-9 Engine; Addition of	Contractual coverage required, 90 Kits proposed, 30 kits approved on R1
	MB3-177R1	9Aug63	Union and Orifice Fitting Heat Exchanger LOX Supply Line; Replacement of	Approved by CCB 13Aug63. Contractual coverage required Effectivity: NA006043 and subsequent
MB3-181			LOX Bootstrap Check Valve; Replacement of (NA-13 Engine)	To be submitted upon completion effort in RFC 135-23R1
	MB3-182	22May63	Control Monitor, Test Stand R.E. Electrical and Pneumatic, G3000; Modification of To reidentify the G3000 Test Stand to reflect the installation of changes, proposed by MCR MB3-163, to the G3002 Control Monitor.	To be cancelled. Incorporated into MB3-195.
	MB3-183R1		Naflex Seals, YLR79-NA-13 Engine; Replacement of	Approved by CCB 13Aug63. Contractual coverage required Effectivity: NA006051 and subsequent

TABLE II

STATUS OF MCR's AND GSECP's AFFECTING THOR SPACE PROGRAM

15 August 1963

MCR NO.	ECP GSECP NO.	ECP GSECP DATE	TITLE	STATUS
	MB3-184R1		Class II to Class I Design Changes, LR79-NA-9 Engines	R1 to be submitted as agreed to in CCB meeting at SSD, 13 Aug. 63.
	MB3-187	24Jul63	Bottom Cover Plate to Body on Gas Generator; Welding of (NA-9 Engine)	Approved by CCB 13Aug63. Contractual coverage required 23 Kits and rework of (1) Cover Assembly.
MB3-186			Solid Motor Ignition Checking Circuit, Interconnecting Box, G1000; Installation of To add the capability of checking the Solid Motor Ignition Circuits to the G1000 Interconnecting Boxes used on the (Thor) LV-2/Agena Program at VAFB.	To be submitted.
MB3-188			Naflex Seal, LR101-NA-11 Vernier Engine; Replacement of	To be submitted.
MB3-189			Interconnecting Box (JEK-3/E47-1), G1000; Changes to Add diodes and contacts at DAC connecting points to isolate the G1000 from DAC signals; delete the obsolete XLR79-NA-5 & -7 Engine Firing Circuitry; delete the Agena Umbilical Eject Signal Circuitry; Change the LOX Valve Monitor Cutoff Circuitry; and delete the Static Firing Circuitry, to increase the reliability ot the G1000 Interconnecting Box and provide Aerospace Ground Equipment that is compatible with Block I, II, and III (LV-2) Engines.	To be submitted.
MB3-190			Interconnecting Box, Stand Test, R.E. Elec. and Pneu., G3000; Modification of To re-identify the F3000 Test Stand to reflect the installation of the change proposed by MB3-186 to the G1000 Interconnecting Box.	To be submitted.

TABLE II

STATUS OF MCR's AND GSECP's AFFECTING THOR SPACE PROGRAM — 15 August 1963

MCR NO	ECP/ GSECP NO	ECP/ GSECP DATE	TITLE	STATUS
MB3-191			Switch, Solid Motor Ignition Checking Circuit, Control Monitor, G3002; Addition of To add a switch to the G3002 Control Monitor that will be used to energize the flight lock-in relays and thus allow a check of the solid motor arming contacts.	To be submitted
MB3-192			Control Monitor, Stand Test, Rocket Engine Electrical and Pneumatic, G3000; Modification of To re-identify the G3000 Test Stand to reflect the installation of the change proposed by MB3-191 to the G3002 Control Monitor.	To be submitted
MB3-193			Interconnecting Box, Stand Test, Rocket Engine Electrical and Pneumatic, G3000; Modification (MB3-189) of To re-identify the G3000 Test Stand to reflect the installation of the change proposed by MB3-189 to the G1000 Interconnecting Box.	To be submitted
MB3-194			Control Monitor, G3002; Changes to Delete the recording circuit for the Agena Umbilical Eject Signal, the static fire/lockout switch, and the K1352-V and K1354-V relays. Add a recording circuit for the Main Fuel Tank Pressurizing and diodes to DAC connecting points to isolate the G3002 from DAC signals.	To be submitted
MB3-195			Control Monitor, Stand Test, Rocket Engine Electrical and Pneumatic, G3000; Modification of To re-identify the G3000 Test Stand to reflect the incorporation of the change proposed by MB3-194 to the G3002 Control Monitor.	To be submitted

STATUS OF RFC's

14 August 1963

RFC NO.	RFC DATE	TITLE	STATUS
135-23R1	5July63	LOX Bootstrap Check Valve, YLR79-NA-13 Main Engine; Replacement of	Awaiting approval.
135-25		Relay Box Shock Mounted, LR79-NA-9 Engine; Provide for	To be submitted.
135-26		Pressure Switches, Fuel Depletion and Solid Motor Ignition Signal; Provide for	To be submitted.